

THREE NEW SPECIES OF THE *NEMATINUS ACUMINATUS* GROUP
(HYMENOPTERA: TENTHREDINIDAE) FROM JAPAN,
WITH A KEY TO SPECIES

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Abstract.—Three new species of the *Nematinus acuminatus* group from Japan are described and illustrated, *N. variabilis* n. sp., *N. shinoharai* n. sp, and *N. helvipes* n. sp. A key is provided for separation of the Japanese species groups of *Nematinus* and of species of the *acuminatus* group.

Key Words: sawflies, *Nematinus*, Japan

Seven species of the genus *Nematinus* have been recorded from Japan, *N. luteus* Panzer, *N. japonicus* (Marlatt), *N. alni* Rohwer, *N. dorsalis* (Matsumura), *N. acuminatus* (Thomson), *N. rubrocaudatus* Takeuchi, and *N. bensoni* Togashi (Takeuchi 1952, 1956, Togashi 1964a, b, 1966). The first four belong to the *luteus* group, and the last three to the *acuminatus* group. Recently, I found several specimens belonging to the *acuminatus* group that represent three new species. I describe these species and give a key to the species of the *N. acuminatus* group of Japan.

KEY TO THE JAPANESE SPECIES
GROUPS OF *NEMATINUS* AND

SPECIES OF THE *ACUMINATUS* GROUP

1. Sawsheath broad, round or truncate at apex in dorsal view *luteus*-group
- Sawsheath acuminate at apex in dorsal view (Figs. 4, 8, 10, 32, and 37) *acuminatus*-group 2
2. Entirely black except for yellow tegula and cercus; legs yellow with coxae black *helvipes* sp. nov.
- Head and thorax mostly reddish yellow, with black maculae or sometimes underthorax black; apical portion of hind femur or tibia with black spots 3
3. Abdominal tergites mostly black 4

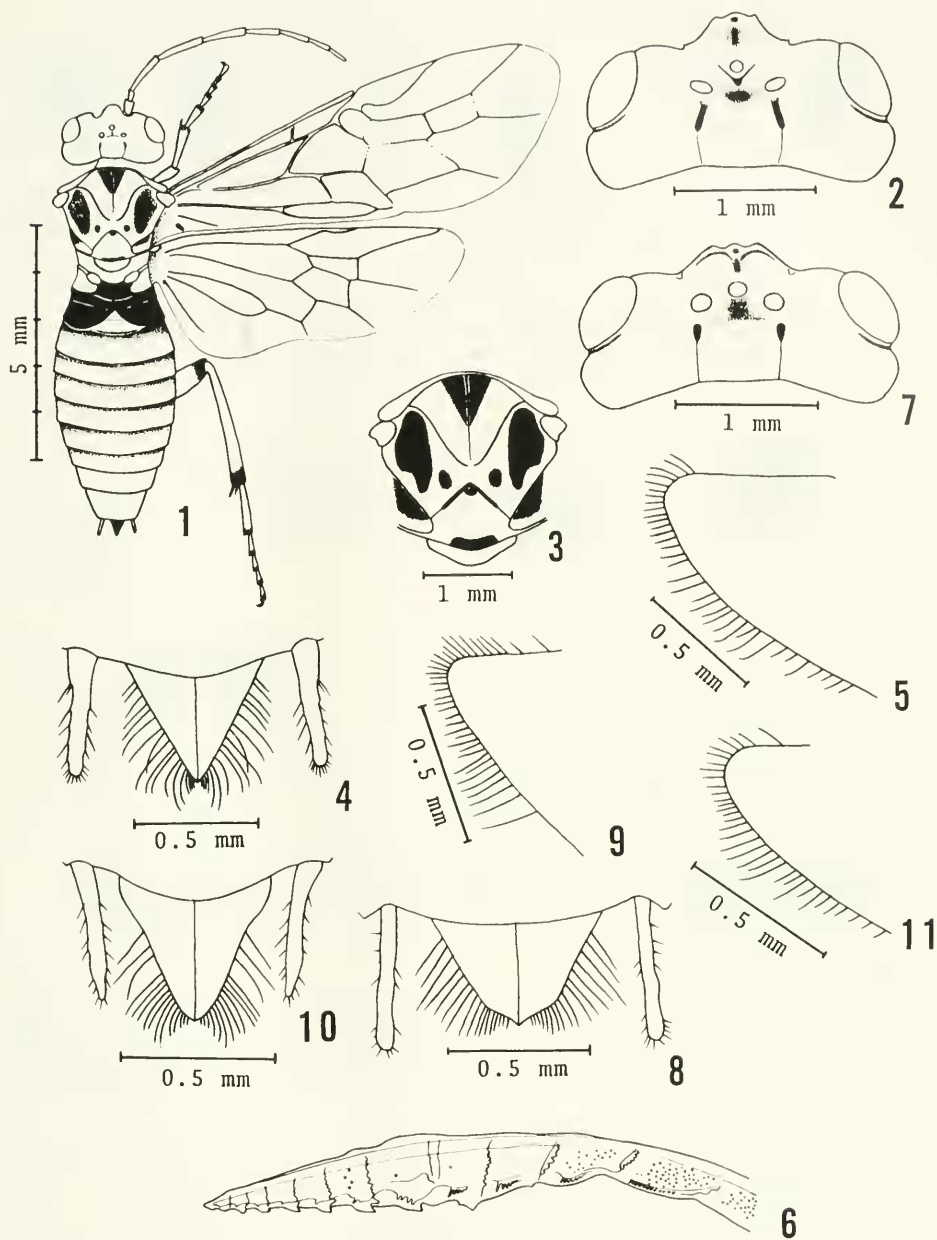
- Abdominal tergites mostly reddish brown 6
4. Abdominal sternites mostly reddish brown .. 5
- Abdominal sternites black (head and thorax black with following parts reddish yellow: clypeus, labrum, cheeks, temples, posterior angles of pronotum, and tegula; last abdominal segment and sawsheath except for apex reddish brown, apex of sawsheath dark brown) *rubrocaudatus* Takeuchi
5. First to 8th abdominal tergites black; mesonotum with 4 black maculae; upper frons, ocellar basin, and post-ocellar area black *bensoni* Togashi
- First to 6th abdominal tergites black with reddish brown lateral sides; mesonotum without black maculae; head without black maculae *acuminatus* (Thomson)
6. Mesoscutellum mostly reddish yellow (Figs. 3, and 12-14); stigma of forewing pale yellow; OOL slightly longer than POL; hind basitarsus slightly longer than following 3 segments combined; lancet: Fig. 6 *variabilis* sp. nov.
- Mesoscutellum entirely black (Figs. 34-36); stigma of forewing dark brown; OOL slightly shorter than POL; hind basitarsus slightly shorter than following 3 segments combined; lancet: Fig. 39 *shinoharai* sp. nov.

Nematinus variabilis Togashi,

NEW SPECIES

(Figs. 1-6, 12-19, and 21-24)

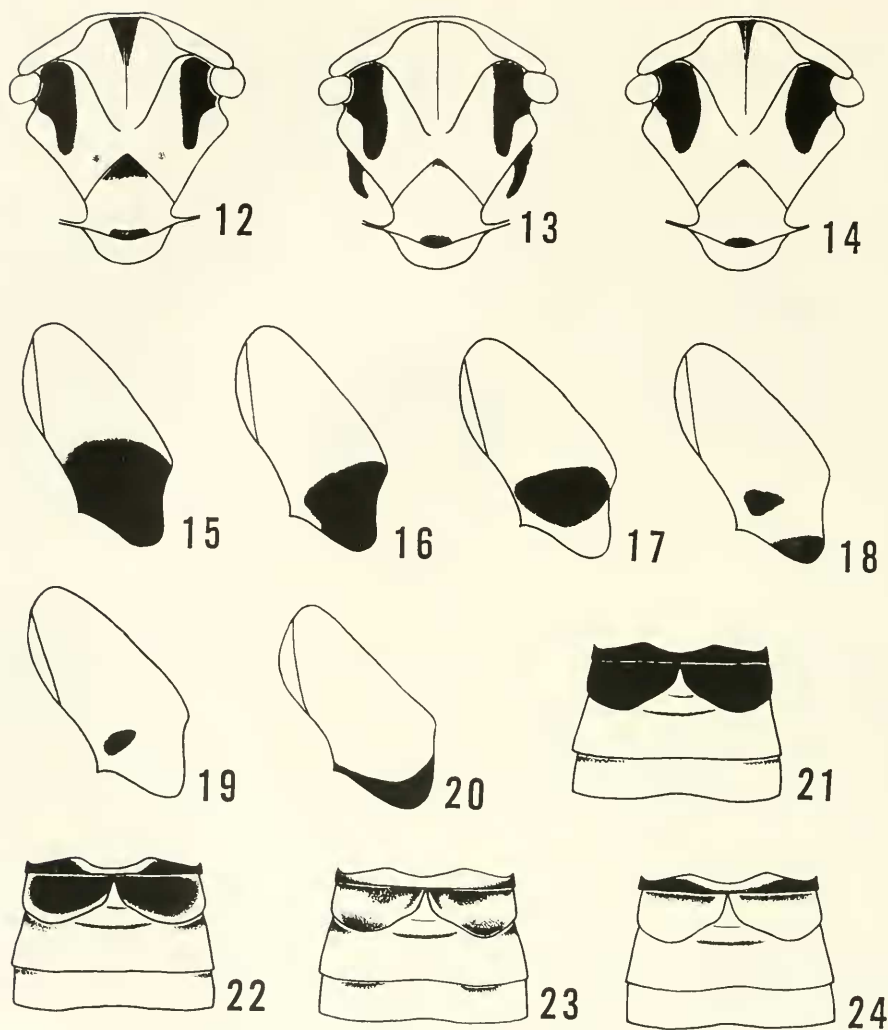
Female.—Length 9.5 mm. Body reddish brown with following parts black: area sur-



Figs. 1-11. 1-6, *Nematinus variabilis*. 7-9, *N. caledonicus*. 10-11, *N. acuminatus*. 1, dorsal view. 2, 7, head, dorsal view. 3, thorax, dorsal view. 4, 8, 11, sawsheath, dorsal view. 5, 9, 11, sawsheath, lateral view. 6, lancet.

rounding front ocellus, supraclypeal foveae, anterior portion of postocellar area, triangular macula of praescutum, two large and two small maculae on mesonotal lateral lobes (Fig. 3), sunken areas, anterior and posterior portion of mesoscutellum (Fig. 3),

metascutellum, metanotum, upper half of mesepimeron, mesosternum, propodeum, anterior margin of 2nd to 5th abdominal tergites, and sawsheath. Antenna reddish brown, with following parts dark brown: basal two segments and upper surfaces of



Figs. 12-24. 12-19, 21-24, *Nematinus variabilis*. 20, *N. acuminatus*. 12-14, mesonotum. 15-20, mesopleuron. 21-24, basal three abdominal segments.

3rd and 4th segments, but apical portion of 4th segment becoming paler. Wings slightly yellowish hyaline; veins dark brown with following parts pale yellow: costa, subcosta, costal vein, submedius, stub of anal vein, and stigma of forewing. Legs reddish yellow but apical portion of hind femur and tibia dark brown.

Head: posterior area rectangular; interocellar furrow distinct and deep; postocellar furrow rather ill-defined; anterior halves of lateral furrows deep and rather broad, but posterior halves linear (Fig. 2); OOL:POL:

OCL = 1.1-1.2:1.0:1.1-1.2; frontal area slightly concave; median fovea deep and elongate; lateral foveae deep, circular in outline, with a conical like projection in middle; clypeus nearly flattened, anterior margin rather semicircularly emarginate; malar space broad, slightly longer than diameter of front ocellus.

Antenna slightly shorter than costa plus stigma of forewing (ratio between them about 1.0:1.1); relative lengths of segments about 1.5:1.0:5.0:5.7:5.2:4.1:3.6:3.0:3.7.

Thorax: normal; mesoscutellum nearly

flattened; prepectus distinct but flattened. *Abdomen*: sawsheath as in Figs. 4 and 5; lancet as in Fig. 6.

Punctuation.—Head and thorax except for prepectus covered with fine setigerous punctures; prepectus nearly impunctate, shining. Abdominal tergites shagreened.

Male.—Unknown.

Distribution.—Japan (Hokkaido).

Holotype: female, 13. VI. 1986, Hitsujigaoka, Sapporo, Hokkaido, I. Togashi leg.

Paratypes: three females, 18. VI. 1984, Yamada-onsen, Tokachi, Hokkaido; 2 females, 21. VI. 1984, Shiretoko-toge, Abashiri, Hokkaido; 3 females, 24. VI. 1984, Kogen-onsen, Mts. Taisetsu, Hokkaido; 1 female, 11–12. VI. 1986, Futamata-onsen, Oshima, Hokkaido. All specimens collected by Dr. A. Shinohara.

Holotype and 6 paratypes are deposited in National Science Museum (Nat. Hist.), Tokyo. One paratype is deposited in the National Museum of Natural History, Washington, D.C., and one paratype in my collection.

Remarks.—This new species closely resembles *Nematinus caledonicus* (Cameron) of Europe, but it is easily separated from the latter by the form of the sawsheath (in *caledonicus*, the apex of the sawsheath is not acute, compare Figs. 4 and 8), by the form of the lateral furrows of the postocellar area (in *caledonicus*, the anterior $\frac{1}{3}$ of the lateral furrows is deeply depressed but the posterior $\frac{2}{3}$ is linear), by characters of the lancet, and by the maculation of the mesonotum (in *caledonicus*, the mesonotum lacks black maculae).

Variation.—The triangular macula of the mesopraescutum varies from black (Fig. 12) to reddish yellow (Fig. 13), and the maculation of mesonotal lateral lobes varies from four distinct (Fig. 3) to two maculae (Figs. 13 and 14). Also, the black maculation of the mesosternum varies from a large (Fig. 15) to small spot (Fig. 19), and the black of the metanotum and the propodeum varies from mostly black to only small maculae (Figs. 21–24).

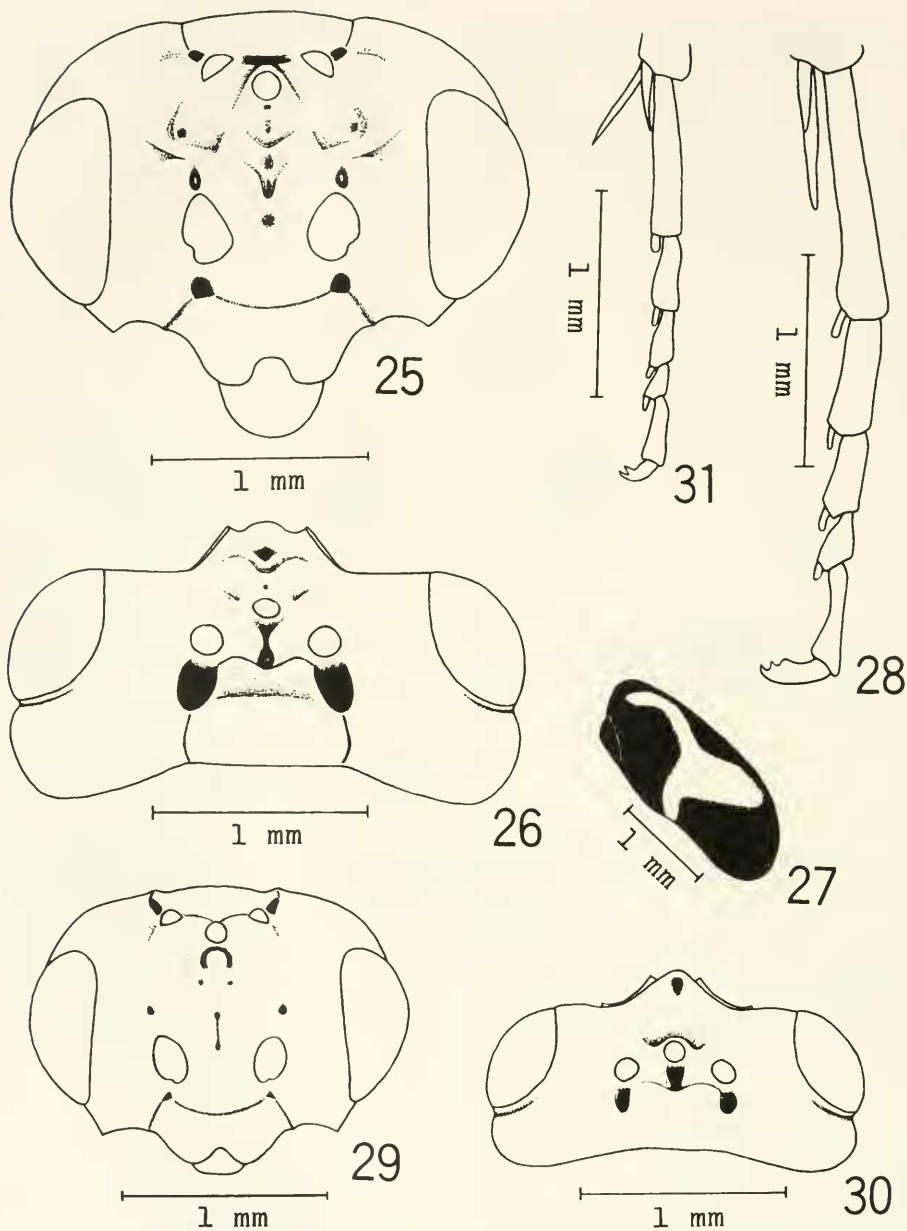
Nematinus shinoharai Togashi,
NEW SPECIES
(Figs. 25–28, 32–36, and 39)

Female.—Length 9.5 mm. Head and thorax black with following parts reddish brown to reddish yellow: hind orbits, lower portion of inner orbits and malar space, clypeus, labrum, mandible except for apex, labial and maxillary palpi, latero-posterior corner of pronotum, tegula, and two maculae on mesonotum (Fig. 34). Abdomen reddish brown but sawsheath black. Antenna reddish brown but basal two segments and upper surface of 3rd to 5th segments black. Wings pale yellowish hyaline, costa dirty yellow, stigma and veins except for basal half of submedius and stub of anal vein in forewing dark brown, basal half of submedius pale yellow. Legs pale yellow to reddish yellow with following parts dark brown to black: basal $\frac{2}{3}$ of hind coxae, apical half of hind femur, and apical portion of hind tibia.

Head: postocellar area nearly flattened; lateral, interocellar, and postocellar furrows distinct and deep (Fig. 26); distinct pits adjacent to anterior ocellus (Figs. 25 and 26); frontal area nearly flattened with distinct surrounding furrow except for lower portion, and with median groove (Fig. 25); median fovea distinct, circular in outline; lateral foveae distinct and deep; antenno-ocular distance nearly as long as distance between antennal sockets; malar space long, nearly twice as long as diameter of front ocellus. Postorbital groove distinct (Fig. 26).

Thorax: normal; hind basitarsus nearly as long as following 3 segments combined (ratio between them about 1.00:0.96) (Fig. 28); ratio between length of hind basitarsus and inner hind tibial spur about 1.0:0.6 (Fig. 28). *Abdomen*: normal. Sawsheath as in Figs. 32 and 33; lancet with 12 serrulae (Fig. 39).

Punctuation.—Head and thorax covered with medium-sized punctures, but frontal area, posterior half of mesonotal lateral lobes, mesoscutellum except for posterior $\frac{1}{4}$, posttergite except for anterior portion,



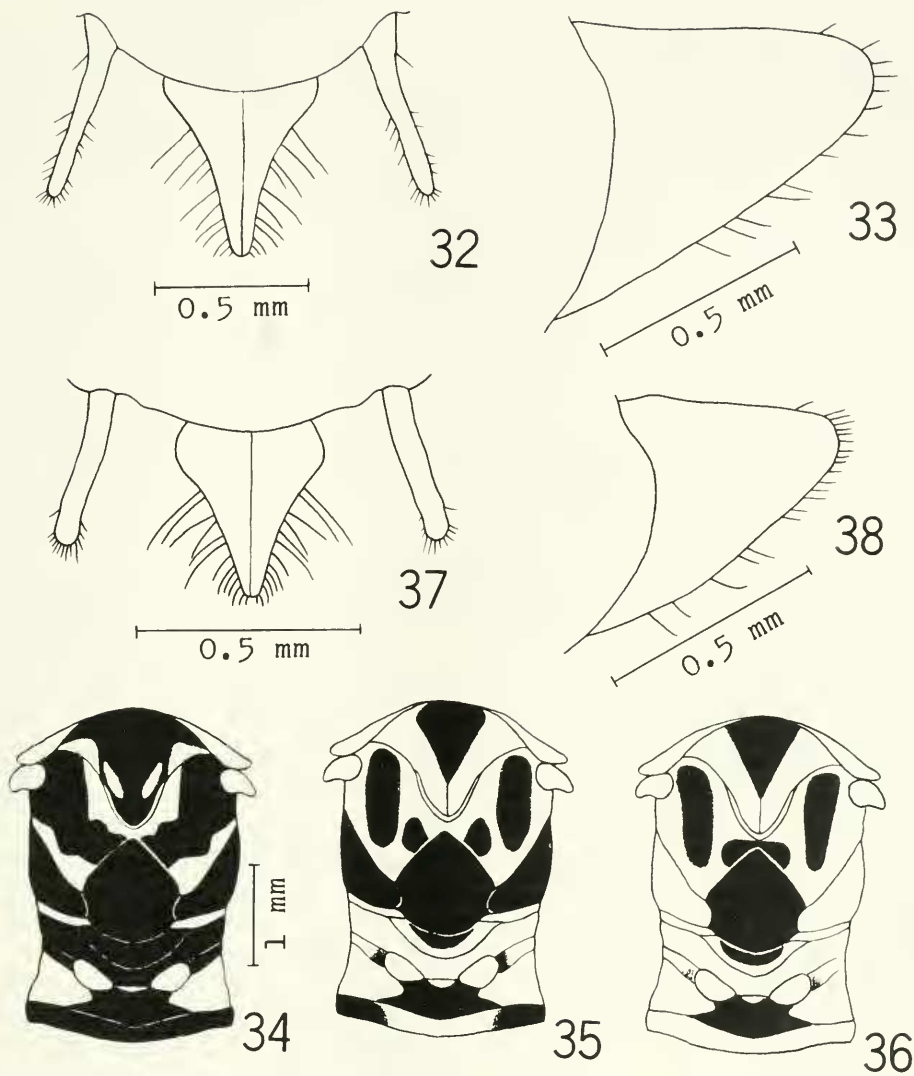
Figs. 25-31. 25-28, *Nematimus shinoharai*. 29-31, *N. helvipes*. 25, 29, head, front view. 26, 30, head, dorsal view. 27, mesopleuron. 28, 31, hind tarsus.

and metanotum covered with very fine punctures, shining; posterior $\frac{1}{4}$ of meso-scutellum and anterior portion of posttergite covered with rather large punctures; propodeum nearly impunctate, shining; 2nd to last abdominal tergites shagreened.

Male.—Unknown.

Distribution.—Japan (Hokkaido and Honshu).

Holotype: female, 21. VII. 1981, Nakano-yu, near Mt. Ontake, Nagano Pref., A. Shinohara leg.



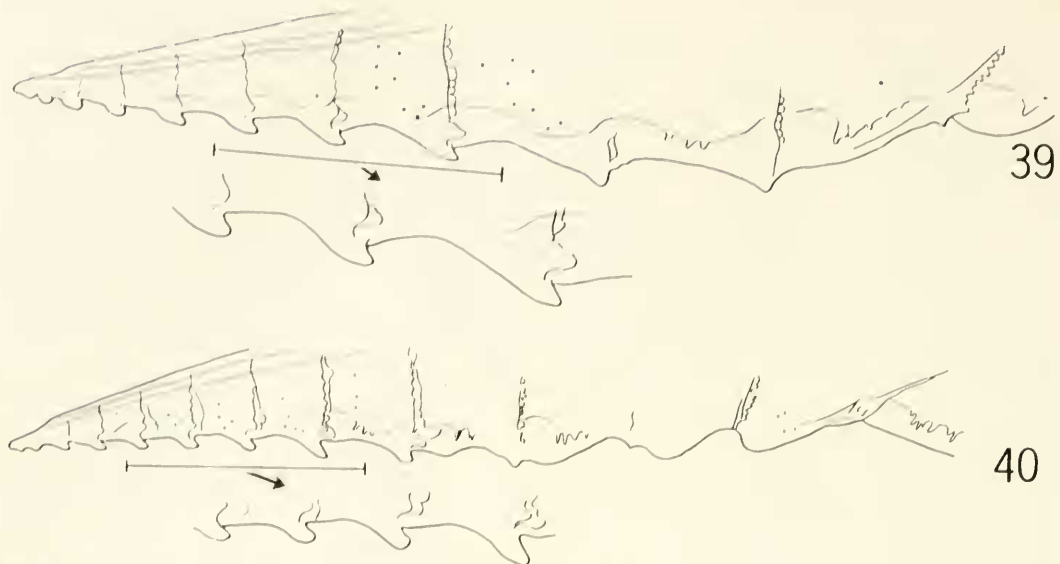
Figs. 32–38. 32–36, *Nematinus shinohari*. 37, 38, *N. helvipes*. 32, 37, sawsheath, dorsal view. 33, 38, sawsheath, lateral view. 34–36, variation of maculation of thorax, dorsal views.

Paratypes: (Hokkaido) one female, 11. VI. 1982, Shiokari, Ishikari; 1 female, 26–27. VI. 1987, Nakayama-toge, Noboribetsu; (Honshu) 1 female, 24. VII. 1984, Rengonsen, foot of Mt. Shirouma, Nagano Pref. All paratypes collected by A. Shinohara. Holotype and 2 paratypes are deposited in National Science Museum (Nat. Hist.), Tokyo. One paratype is deposited in the National Museum of Natural History, Washington, D.C.

Remarks.—This new species very closely

resembles *N. variabilis*, but it is easily distinguished from the latter by the entirely black mesoscutellum (in *variabilis*, the mesoscutellum is mostly reddish yellow), by the large maculae of the mesonotum (in *variabilis*, the mesonotum has two to five smaller maculae, compare Figs. 3, 12–14, and 34–36), by the coloration of the stigma of the forewing (in *variabilis* it is pale yellow), and by characters of the lancet (compare Figs. 6 and 39).

Variation.—The maculation of the me-



Figs. 39, 40. Lancets. 39, *Nematinus shinoharai*, 40, *N. helvipes*.

sopraescutum varies from nearly all black (Fig. 34) to a triangular black macula (Figs. 35 and 36), and the maculation of the mesonotal lateral lobes varies from a large, oblique, black macula (Fig. 34) to four black maculae (Figs. 35 and 36). The maculation of the posttergite varies from entirely black to nearly all reddish yellow (Figs. 34–36), and the maculation of the metanotum varies from entirely black to entirely reddish yellow (Figs. 34–36).

***Nematinus helvipes* Togashi,**

NEW SPECIES

(Figs. 29–31, 37–38, and 40)

Female.—Length 7–8.5 mm. Body black with following parts reddish yellow to reddish brown: labial and maxillary palpi, tegula, and cercus. Antenna black but under surface dark brown to dark reddish brown. Wings hyaline, veins and stigma dark brown. Legs pale reddish yellow, but all coxae black except for reddish yellow apical portions.

Head: postocellar area nearly rectangular

(Fig. 30); lateral furrows distinct and deep; postocellar furrow depressed; interocellar furrow distinct; U-shaped furrow anterior to front ocellus as shown in Fig. 29; frontal area nearly flattened, with a surrounding furrow but anterior portion indistinct; median fovea rather elongate; lateral foveae distinct, each with a conical like projection in middle; ratio between antenno-ocular distance and antennal sockets about 1.3:1.0; malar space longer than diameter of front ocellus (ratio between them about 1.0:0.6); postorbital groove distinct.

Thorax: normal; hind basitarsus as long as following 3 segments combined (ratio between them about 1.0:1.0); inner hind tibial spur slightly longer than half length of hind basitarsus (ratio between them about 1.0:1.8). **Abdomen:** normal; sawsheath as in Figs. 37 and 38; lancet with 13 serrulae (Fig. 40).

Punctuation.—Head and thorax except for mesoscutellum and posttergite covered with setigerous punctures, posterior half of mesoscutellum covered with rather large and shallow punctures, anterior half of meso-

scutellum nearly impunctate but with 3 or 4 shallow longitudinal furrows, posttergite and metascutellum covered with fine setigerous punctures. Abdominal tergites shagreened.

Male.—Unknown.

Distribution.—Japan (Hokkaido and Honshu).

Holotype: female, 21–23. VI. 1989, Kamikochi, Nagano Pref., A. Shinohara leg.

Paratypes: two females, 16. VI. 1979, Nukabira, altitude 600–700 m, Hokkaido. Holotype and one paratype are deposited in National Science Museum (Nat. Hist.), Tokyo, and one paratype is deposited in the National Museum of Natural History, Washington, D.C.

Remarks.—This new species is closely allied to *N. rubrocaudatus*, but it is easily distinguished from the latter by the black abdomen (in *rubrocaudatus*, the last abdominal segment and sawsheath are reddish brown), by the yellowish hind femur and tibia (in *rubrocaudatus*, the apical portion of the hind femur and tibia are black), and by characters of the lancet.

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LITERATURE CITED

- Takeuchi, K. 1952. A generic classification of the Japanese Tenthredinidae (Hymenoptera: Symphyta). Kyoto, 90 pp.
- . 1956. Sawflies of the Kurile Islands (II). *Insecta Matsumurana* 19: 71–81.
- Togashi, I. 1964a. On some sawflies (Hym.: Symphyta) of the northern part of the Japan Alps. *New Entomologist* 13: 43–44.
- . 1964b. New and unrecorded species of the subfamily Nematinae (Hym.: Symphyta) from Japan (2). *Kontyû* 32: 479–483.
- . 1966. New and unrecorded species of the subfamily Nematinae (Hym.: Symphyta) from Japan (3). *The Life Study (Fukui)* 10: 4–5.